

CLAIMS

What is claimed is:

1. A method for mitigating the deposition of wax on production tubing walls, the method comprising:

positioning at least one ultrasonic frequency generating device adjacent the production tubing walls; and
producing at least one ultrasonic frequency thereby disintegrating the wax and inhibiting the wax from attaching to the production tubing walls.

2. The method of claim 1 and further comprising:
producing three predetermined frequencies, the frequencies being a first frequency, a second frequency, and a third frequency.

3. The method of claim 1 wherein the three frequencies range between approximately ten (10) KHz and approximately five hundred (500) KHz.

4. The method of claim 2 and further comprising:
producing the first frequency;
vibrating the production tubing; and
inhibiting the wax from depositing on the production tubing walls.

5. The method of claim 2 and further comprising:
producing the second frequency; and
breaking the bonds adhering the wax molecules together thereby disintegrating the wax into particles.

6. The method of claim 2 and further comprising:
producing the third frequency;
reducing the long chained alkanes of the wax molecules thereby reducing the wax into smaller molecules.

- 1 7. The method of claim 2 and further comprising:
2 generating all three predetermined frequencies simultaneously.
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- 4 8. The method of claim 1 and further comprising:
5 determining the optimal frequencies with a variable frequency device.
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- 7 9. A system for mitigating the deposition of wax on production tubing walls, the
8 system comprising:
9 at least one ultrasonic frequency generating device adjacent the production
10 tubing walls; and
11 at least one ultrasonic frequency generated by the generating device thereby
12 disintegrating the wax and inhibiting the wax from attaching to the
13 production tubing walls.
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- 15 10. The system of claim 9 wherein three predetermined frequencies are generated.
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- 17 11. The system of claim 9 wherein the three frequencies range between
18 approximately ten (10) KHz and approximately five hundred (500) KHz.
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- 20 12. The system of claim 10 wherein the first frequency is approximately equal to
21 the characteristic frequency of the production tubing thereby vibrating the production
22 tubing and inhibiting the wax from depositing on the production tubing walls.
23
- 24 13. The system of claim 10 wherein the second frequency has a frequency
25 sufficient to disintegrate the wax into particles by breaking the bonds which cause the
26 wax molecules to adhere together.
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- 28 14. The system of claim 10 wherein the third frequency has a frequency sufficient
29 to break the bonds of the wax molecules so that the long chained alkanes are broken
30 down into smaller molecules.
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- 32 15. The system of claim 10 and further comprising:
33 generating all three predetermined frequencies simultaneously.

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2 16. The system of claim 9 and further comprising:
3 a variable frequency device for determining the optimum frequencies.

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